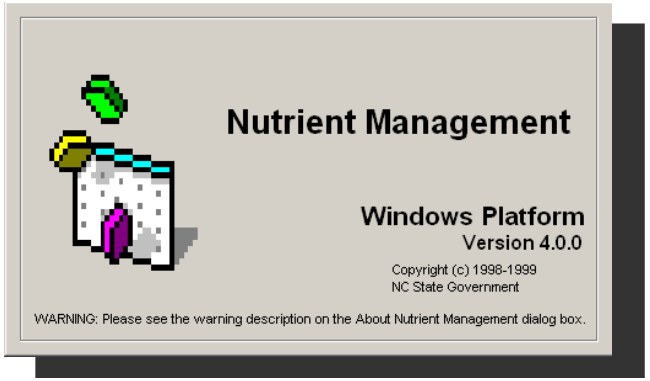
N.C. Nutrient Management Software

Module 1

Introduction & Basics



Water Quality Non-discharge Rules - 0.0200 Rules (1992)

15A NCAC 2H.0200

- Addresses livestock farms meeting the feedlot definition & threshold:

Cattle	100 head
Swine	250 head
Horse	75 head
Sheep	1,000 head
Poultry, liquid waste	30,000 birds

- Farms must register w/ NC DEM by 12/31/1993
- Must develop and implement an approved waste management plan by 12/31/1997
- Waste plan certification by “technical specialist” and filed w/State and SWCD

Blue Ribbon Study Commission on Agricultural Waste ('95-'96)

- Government-appointed, 18 members
- Further study and formulate additional recommendations.

Act to Implement Recommendations of the Blue Ribbon Study Commission on Agricultural Waste (1996)
Senate Bill 1217

- General permits and fees
- Waste Management Plan required
- Operation review and compliance inspections
- State Agency employee duty to report discharges
- Certification and training of operators
- Setbacks and disclosure to adjoining neighbors of intent to construct new swine farm
- Also, some requirements for poultry dry litter systems.

Permitting of CAFO's in North Carolina

- January 1, 1997 DWQ began issuing Certificates of Coverage (COC) under **General Permits** and **Individual Permits** for facilities above threshold.

- In 2003, DWQ began issuing COC under **NPDES** General **Permits** in accordance with federal rules for some farms.

- Currently, any facility above threshold populations is required to obtain <u>either</u> a **(State) General** or **(Federal) NPDES** permit.

- Facilities under threshold are deemed permitted as long as they are compliant w/ regulations.

Location of the Latest N.C. Animal Waste Management System Rules:

North Carolina Administrative Code
Title 15A
Department of Environment and Natural Resources
Division of Water Quality

SUBCHAPTER 2T – WASTE NOT DISCHARGED TO SURFACE WATERS

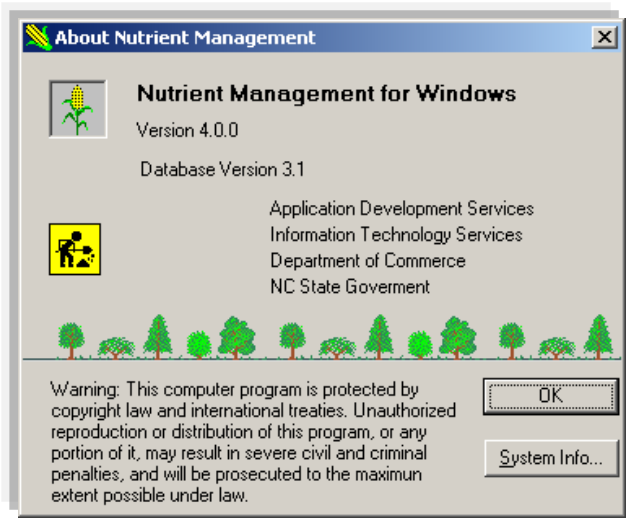
SECTION .1300 – ANIMAL WASTE MANAGEMENT SYSTEMS
15A NCAC 02T .1301 - .1306

Last Amended on September 1, 2006
Environmental Management Commission
Raleigh, North Carolina

Website:

http://h2o.enr.state.nc.us/admin/rules/documents/2Tbook.pdf

The N.C. Nutrient Management Software



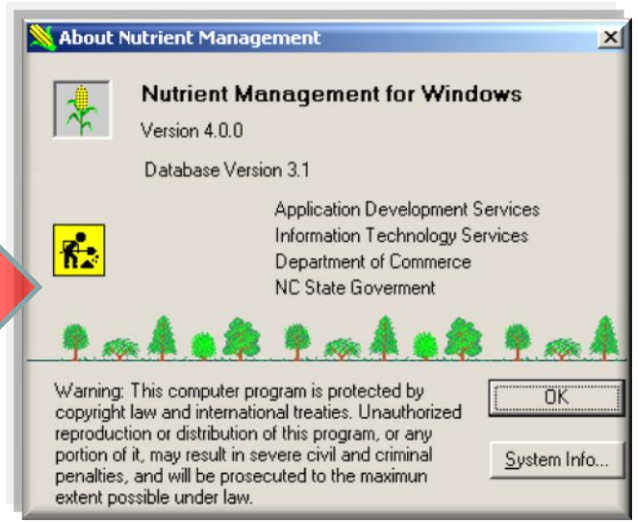
* Use of this software program is not mandatory.

Developed as a cooperative effort between the:

- **N.C. Division of Soil and Water Conservation**
- **N.C. Department of Agriculture & Consumer Services**
- **N.C. Cooperative Extension Service**
- **USDA Natural Resources Conservation Service.**

The N.C. Nutrient Management Software

- **USDA-NRCS 590 Nutrient Management Standard.**
- **USDA-NRCS 633 Waste Utilization Standard.**
- **NCDA "Crop Fertilization Based on N.C. Soil Tests".**
- **0.0200 Rules / SB1217**
- **North Carolina Nutrient Management Workgroup. 2003. Realistic yields and nitrogen application factors for North Carolina crops.** http://nutrients.soil.ncsu.edu/yields/



Nutrient Management Program addresses the **Waste Utilization Plan**

	Waste Utilization Plan Minimum Contents SB1217	Nutrient Management Software	Operation & Maintenance	Maps: FSA, ArcMap
1	List of all fields receiving waste by tract number, field number, and acres; wettable or effective acres as appropriate.	√		
2	Maps of all fields to be used for waste application.			√
3	Amount of manure produced and used annually	√		
4	Waste application method	√		
5	All crops to be grown by field	√		
6	Realistic yield expectations (RYE) for intended crops	√		
7	Dominant soil series for each waste application field	√		
8	N application rate by field	√		
9	**Annual N balance = pounds of N generated minus pounds of N taken up by crops (balance must be ≤ zero)**	√		
10	Waste application windows	√		
11	Irrigation parameters where irrigation is used		√	
12	Calibration information		√	
13	Required specification from NRCS Waste Utilization Standard Code 633	√		
14	Emergency action plan	√		
15	Odor checklist	√		
16	Insect checklist	√		
17	Mortality checklist	√		
18	Waste sampling within 60 days of land application		√	
19	Annual soil sampling		√	

N.C. Nutrient Management Software: Download & Set-Up

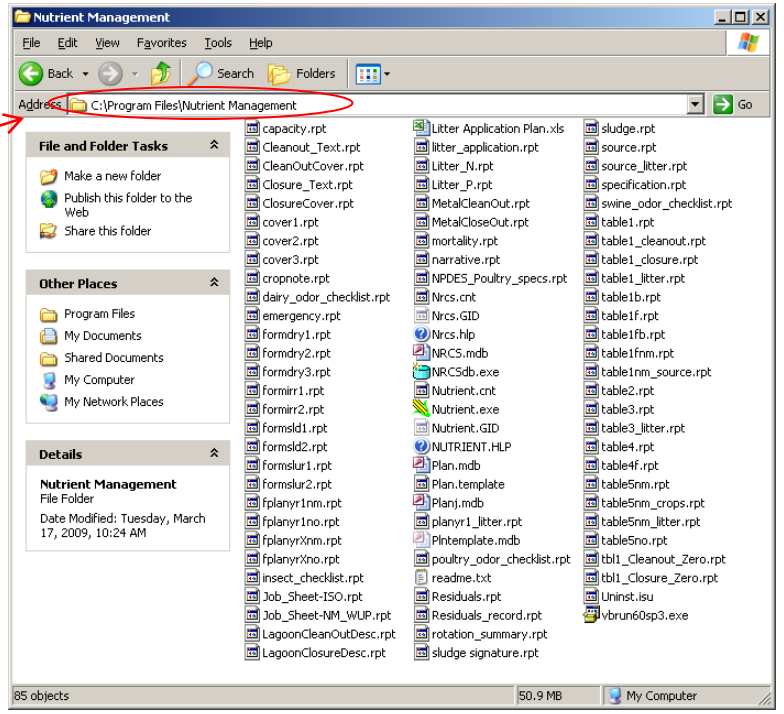
http://www.soil.ncsu.edu/programs/nmp/ncnmwg/nmp/software.htm

Download:

1) Download → 2) Extract → 3) Install

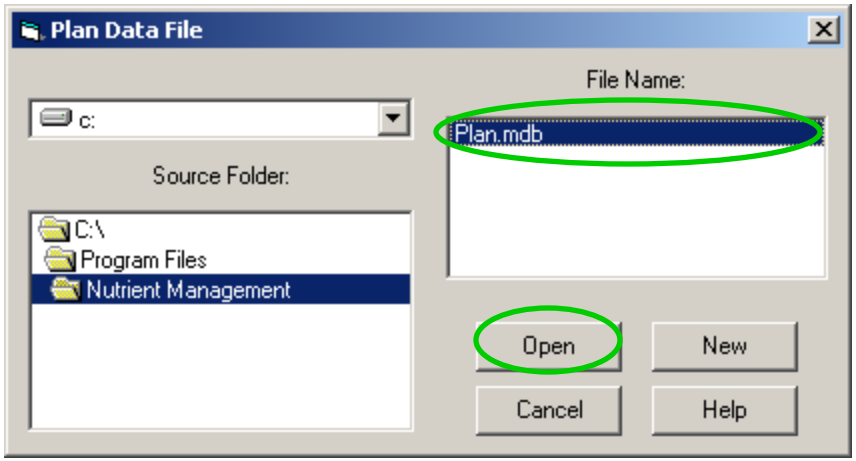
Initial Setup will automatically generate a folder named **C:\Program Files\Nutrient Management** and install all necessary files to run the Nutrient Management Program.

Unless you choose an alternative installation configuration, all necessary files will be installed in this folder.



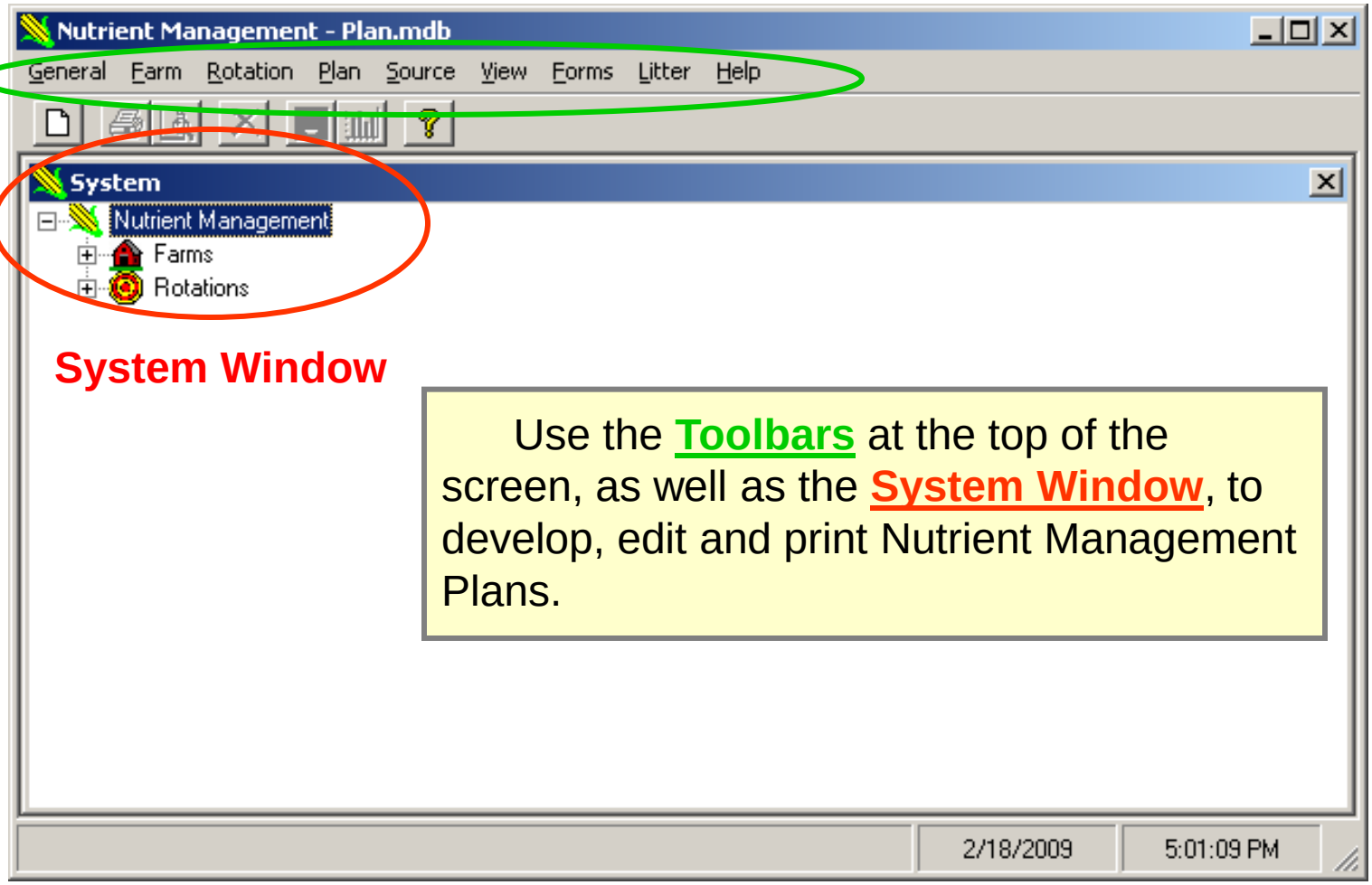
1) Get Started

1) Double-click the **Icon** and the Plan Data File box will appear.



2) Select the **File Name** "Plan.mdb" and then click **Open**.

2) Main Nutrient Management Screen

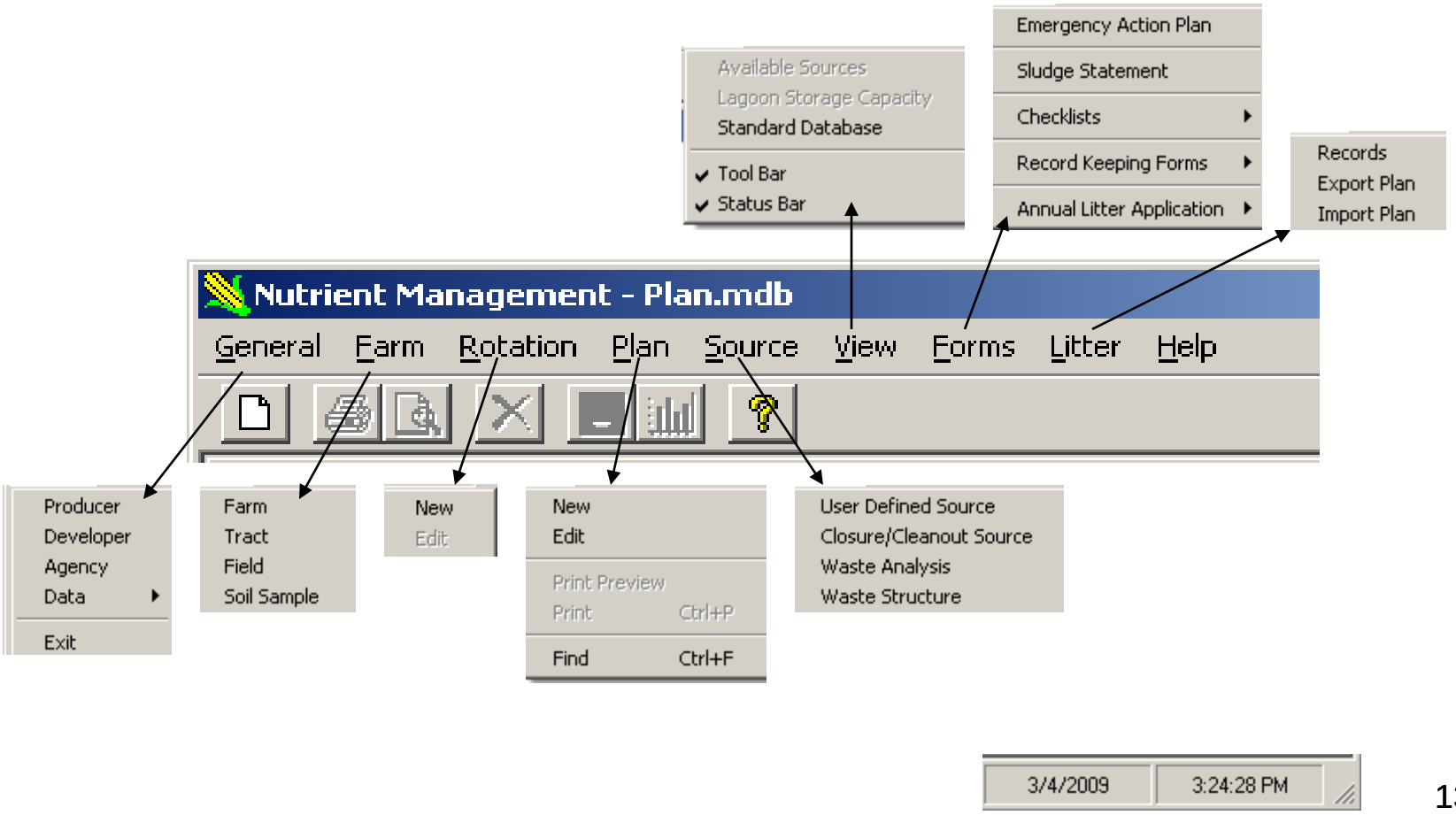


Use the **Toolbars** at the top of the screen, as well as the **System Window**, to develop, edit and print Nutrient Management Plans.

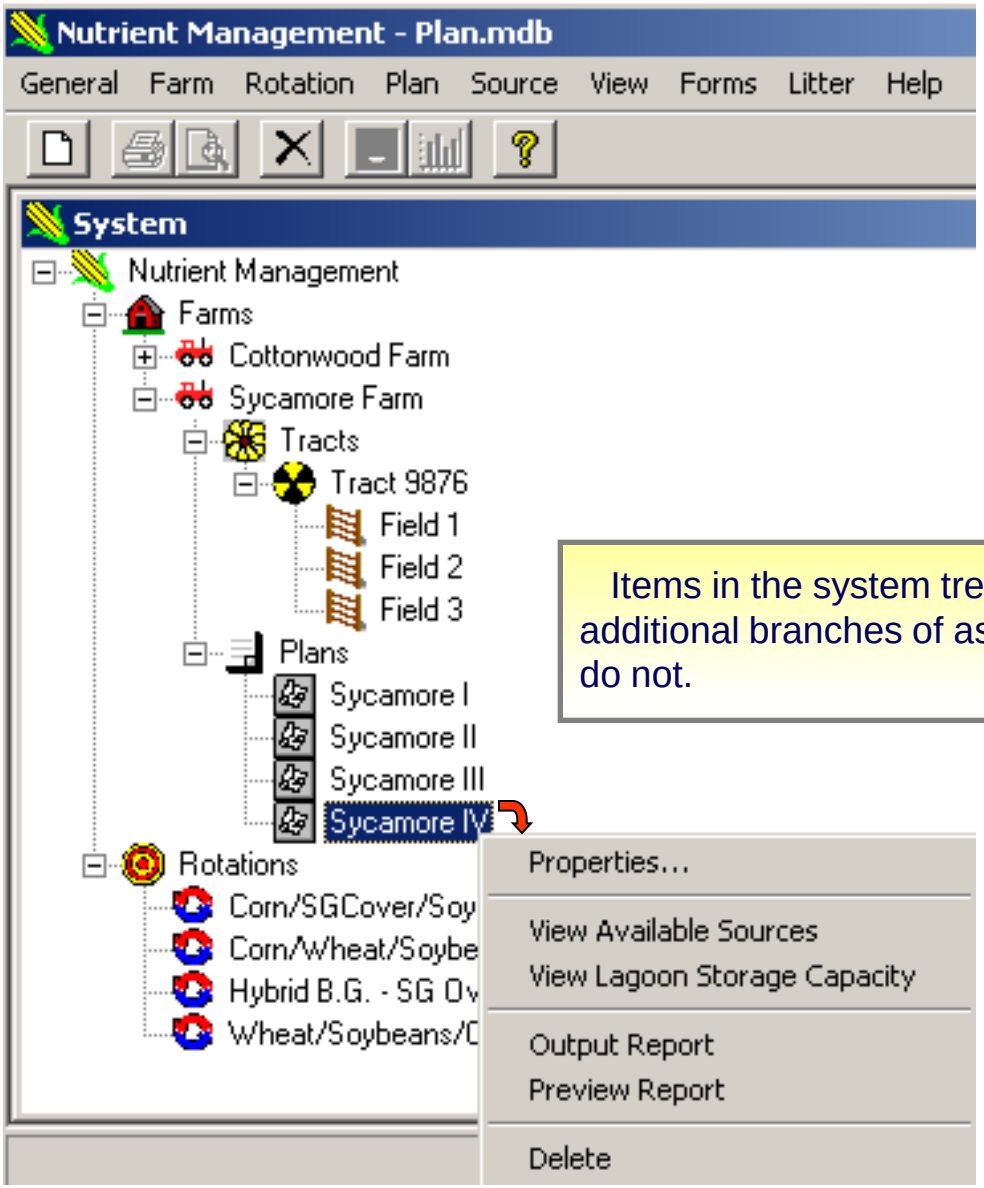
2) Main Nutrient Management Screen

Toolbars

In general, use Toolbars from left to right to add plan information:



14) The System Tree



The **System Tree** represents of the way farm, plan and rotation data is organized in the program.

Each field is associated with a particular tract and each tract is associated with a single farm. Plans are also associated with individual farms. Rotations are not farm specific and may be used in multiple plans for numerous farms.

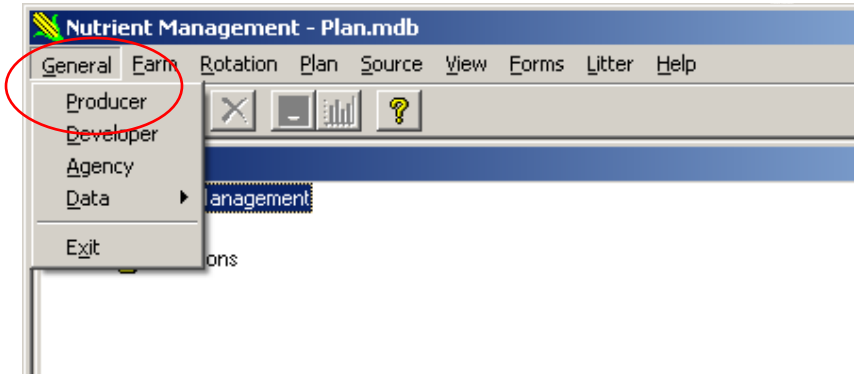
Items in the system tree with the ⊞ symbol beside them have additional branches of associated data, those with the ⊟ symbol do not.

Each data item in the system tree can be manipulated by pointing the arrow at the item and clicking the right mouse button. A pop-up menu will then appear listing the menu of options associated with that item.

3) General: Producer Information

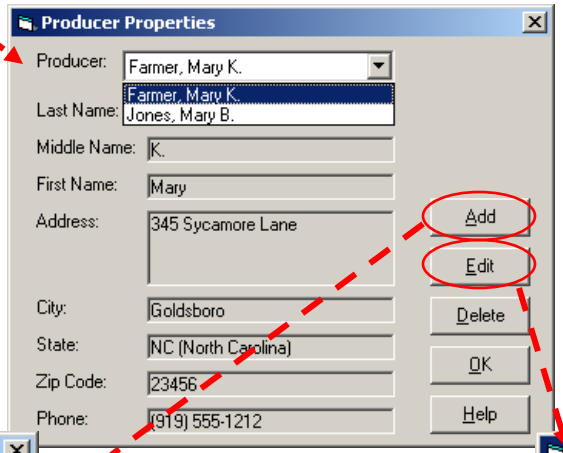
View producer properties: Tab **General** > **Producer**

Select existing **Producer** or add a new one.



Add a new Producer:

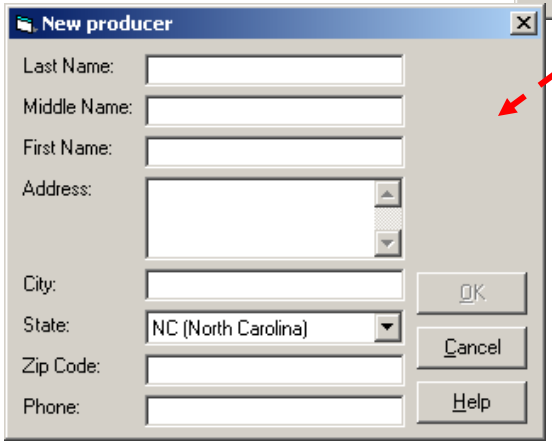
Click **Add,** add information and click **OK** to save.



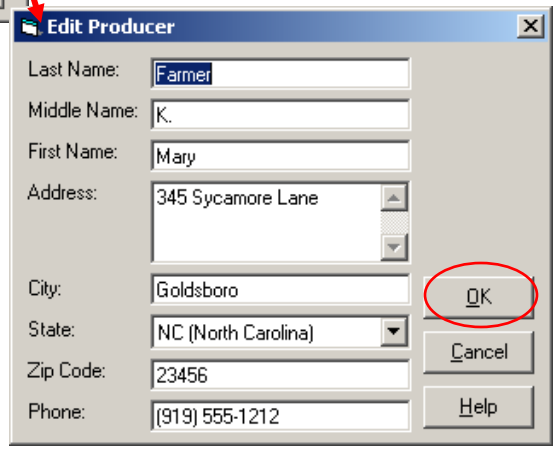
Edit Producer Information:

Select Producer, click **Edit** button.

Add/edit information and click **OK**.



Note: Use Delete to remove a Producer from the list.

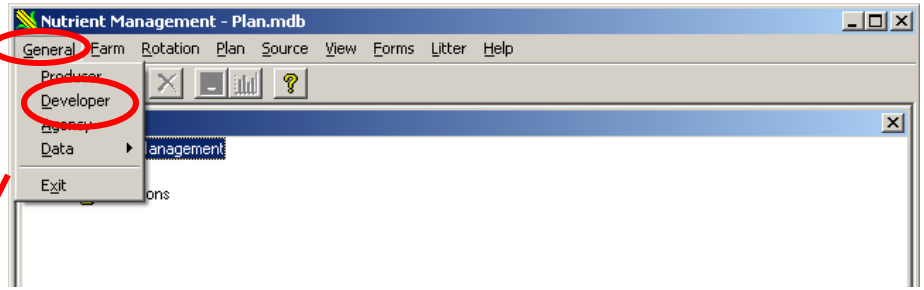


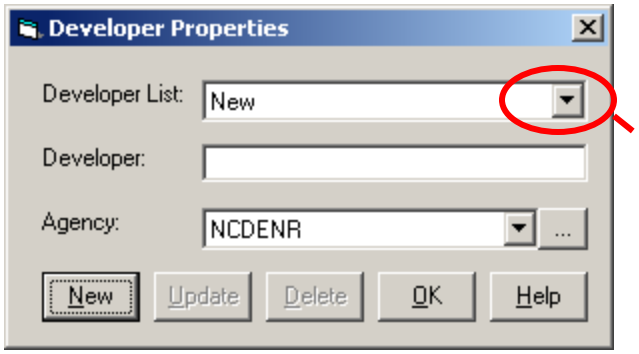
4) General: Developer Information

To view/select existing developer:

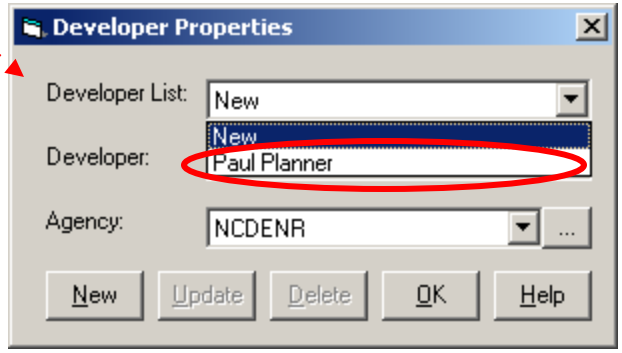
Click **General** > **Developer**

The **Developer Properties** dialog box will appear.



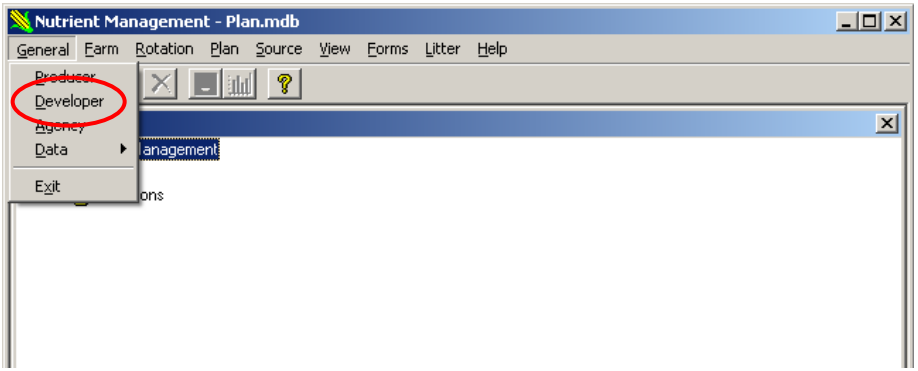


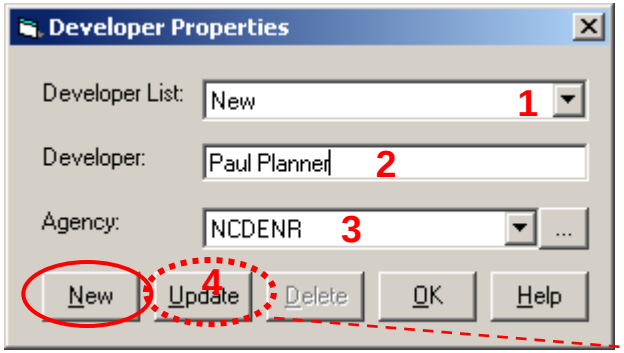
Select the desired **Developer** from the **Developer List**.

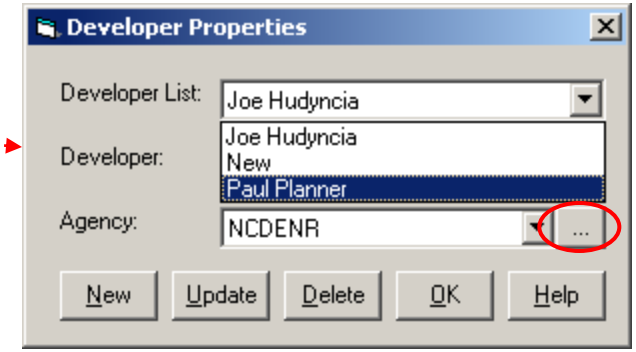


4) General: Developer Information

To **add a new developer**:







Note: Use "..." button to add a **New Agency**.

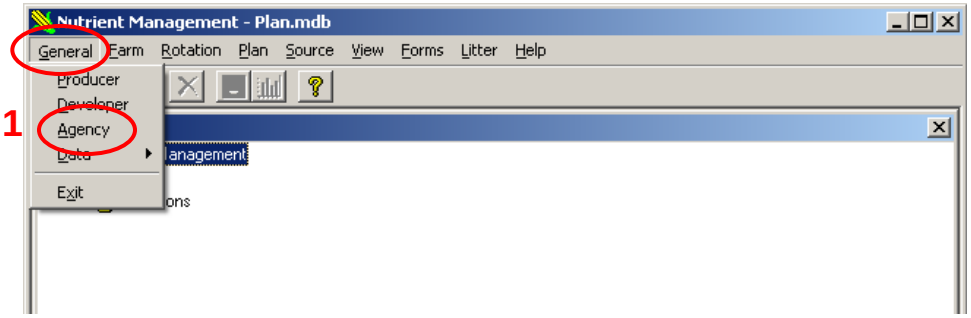
1) Click **New** or select **New** from **Developer List**
2) enter developer's name
3) select the appropriate agency
4) Click **Update** and the new developer is displayed in the list

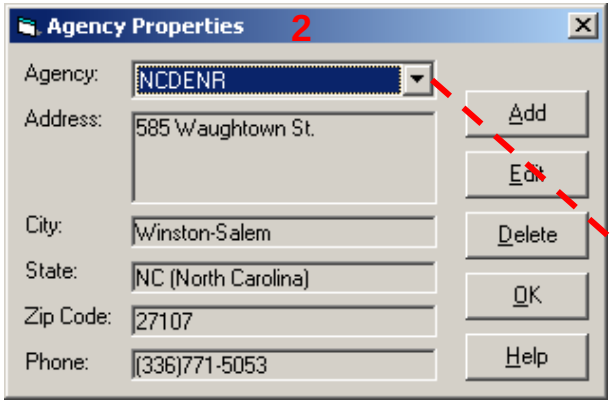
Note: Before you can enter a developer name, you must enter the agency properties for that developer.

5) General: Agency Information

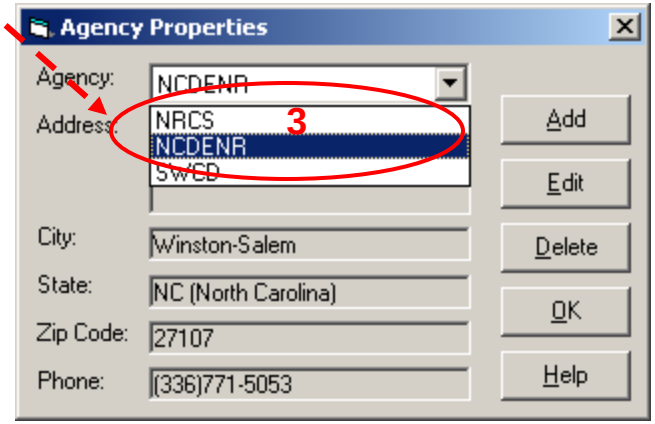
To view agency properties:

1) Click **General** > **Agency**
2) This opens the **Agency Properties** dialog box.

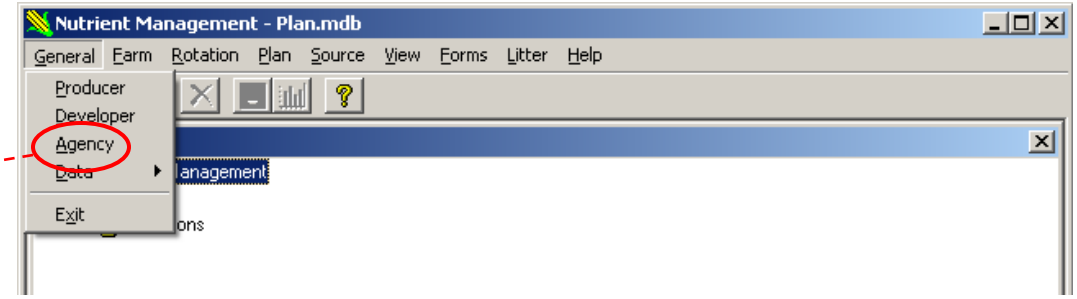


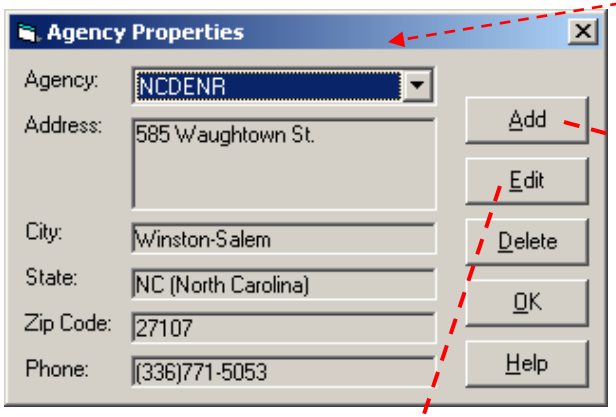


3) Select the desired **Agency** from the combo box.

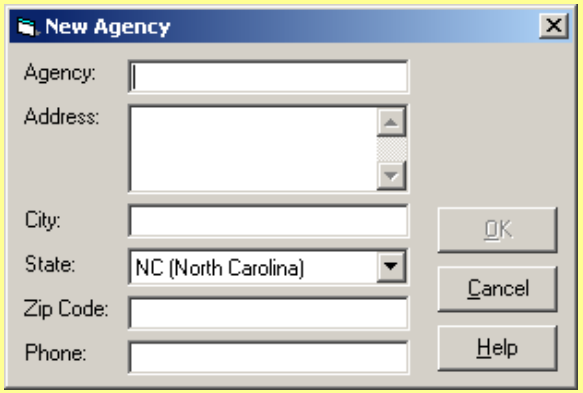


5) General: Agency Information



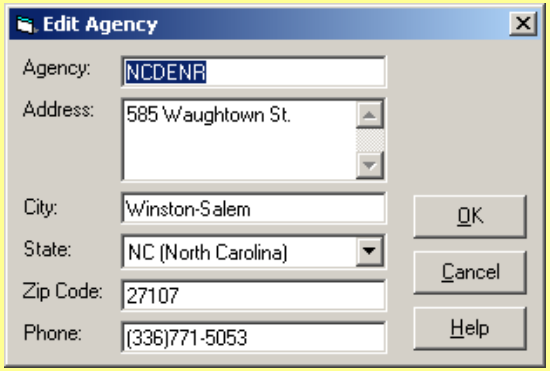


To add a new agency click **Add**.



*Add or edit information and Click **OK** to save and close.*

To edit agency information click **Edit.**

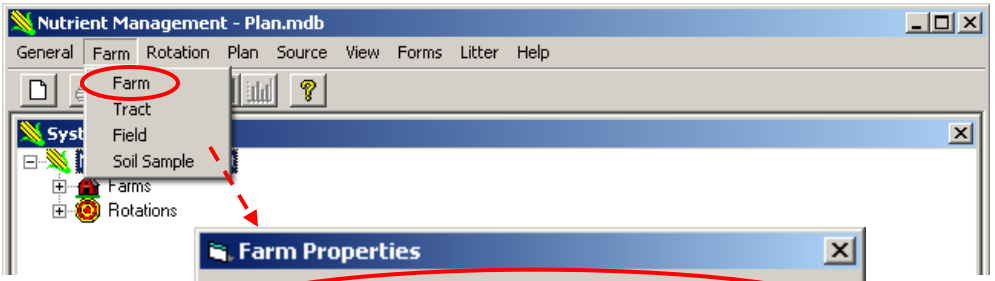


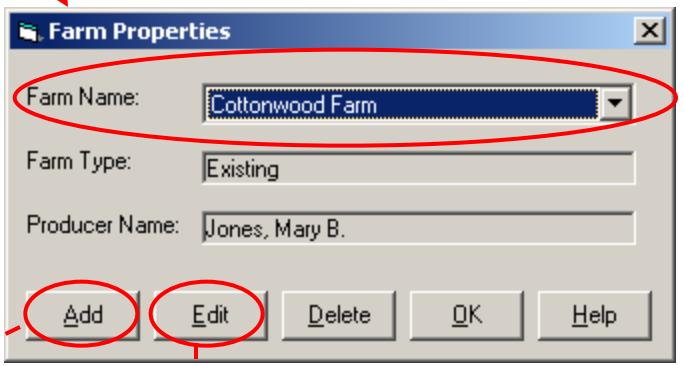
*Note: Use the **Delete** button to remove an agency and the associated information.*

6) Farm: Farm Information

To **view farm properties**:

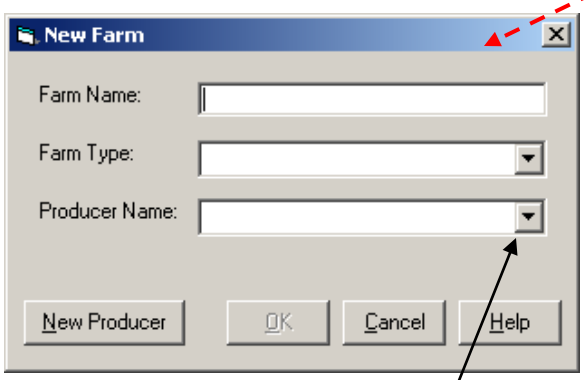
Click **Farm** > **Farm** from the drop down menu. A **Farm Properties** dialog box will appear. View and select the appropriate name under **Farm Name**.





To **add** a farm:

Click **Add** to open the **New Farm** dialog box. Enter the **Farm Name** and select the **Farm Type*** and **Producer Name.**** *Click **OK** to save.*

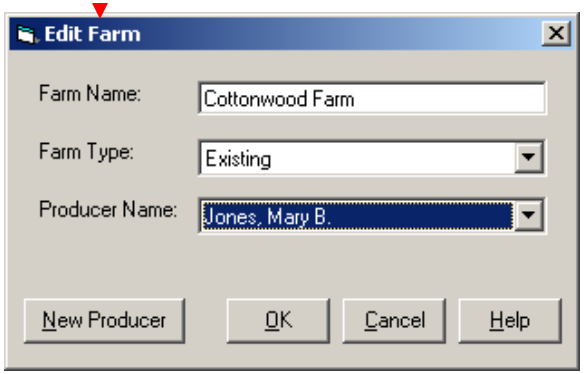


Note: *A Producer Name must be selected before a farm can be added.

Note: *Farm Type generally refers to animal operations and are described as **Existing**, **Expanding** and **New**. Select one of these three categories to describe the farm.

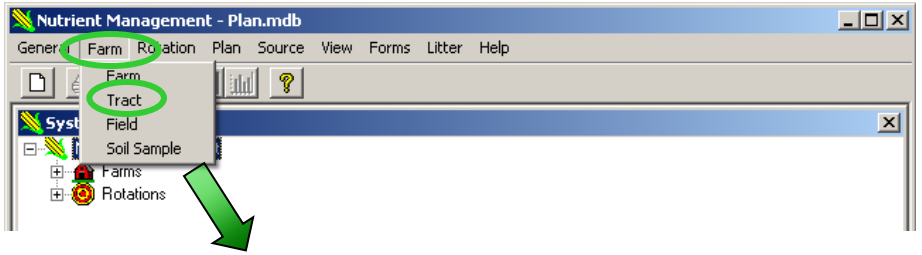
To **edit** a farm:

Click **Edit** to open the **Edit Farm** dialog box. Make the appropriate changes and click **OK** to save.

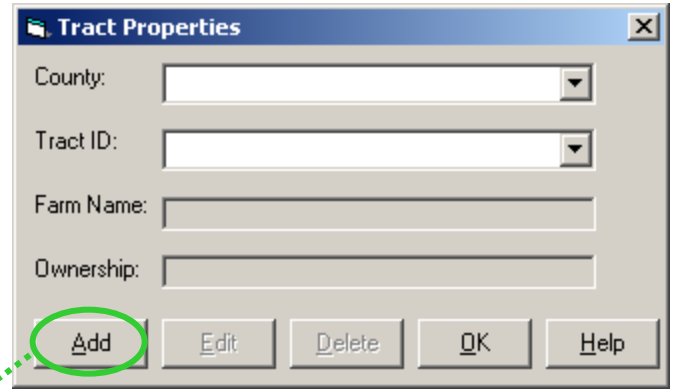


7) Farm: Tract Information

To **view tract properties**, click **Farm** > **Tract.**

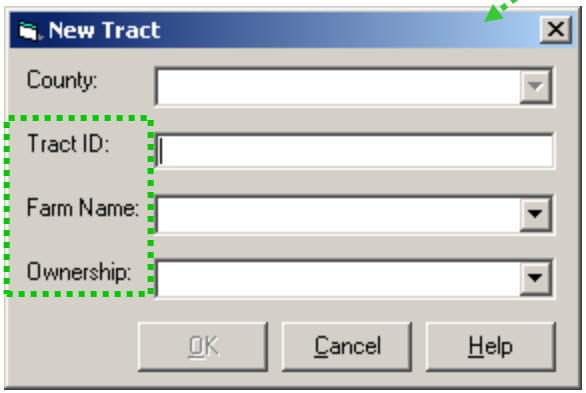


In the **Tract Properties** dialog box specify **County** and **Tract ID** (number). Farm name and ownership will display.



When data entry is complete, click the **OK** button.

To close this dialog box without saving changes, simply click the **Cancel** button.



To Add a New Tract:

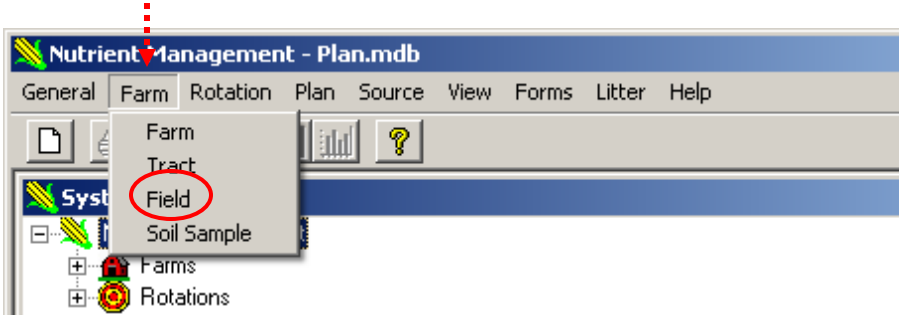
Click **Add**.

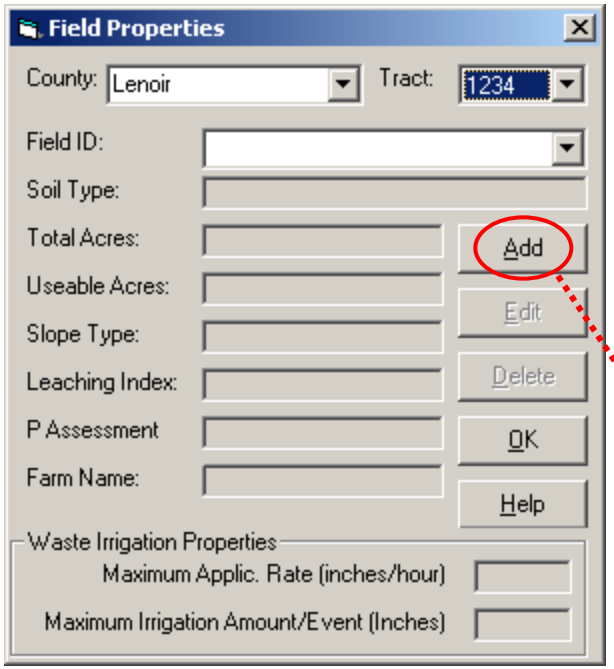
In the **New Tract** dialog box, enter the **Tract ID** and select the **Farm Name** and **Ownership** status.

Note: Tract ownership is either leased or owned. One of these two choices must be selected.

9) Farm: Field Information

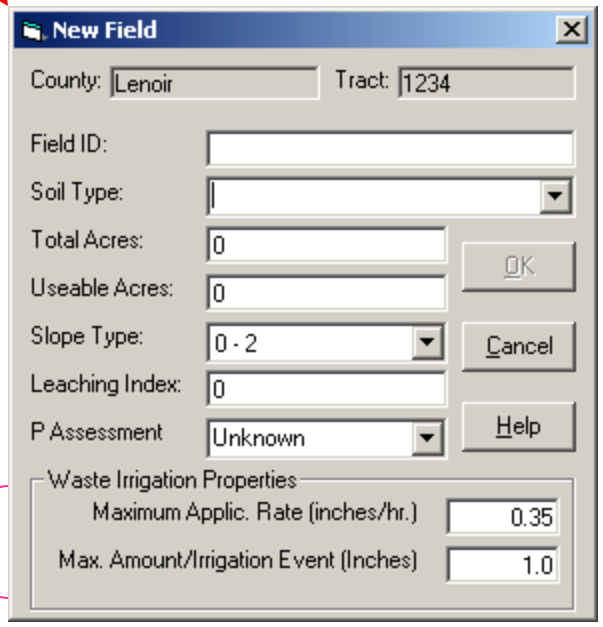
• Add a Field





To **add** a new field: select the **County** and **Tract,** then click **Add.**

A **New Field** dialog box will appear.



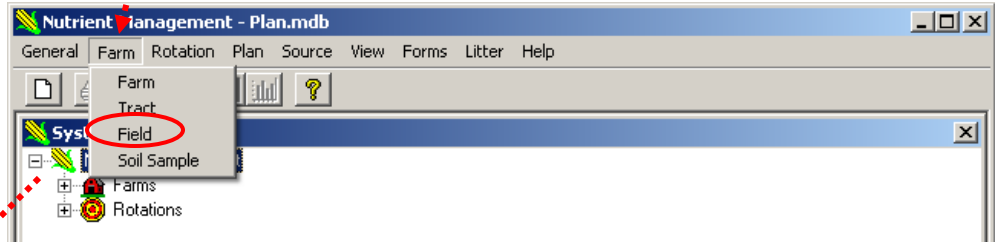
Enter the **Field ID**, **Soil Type**, **Total Acres**, **Useable Acres**, **Slope Type** (%) and other required information.

*Click **OK** to save.*

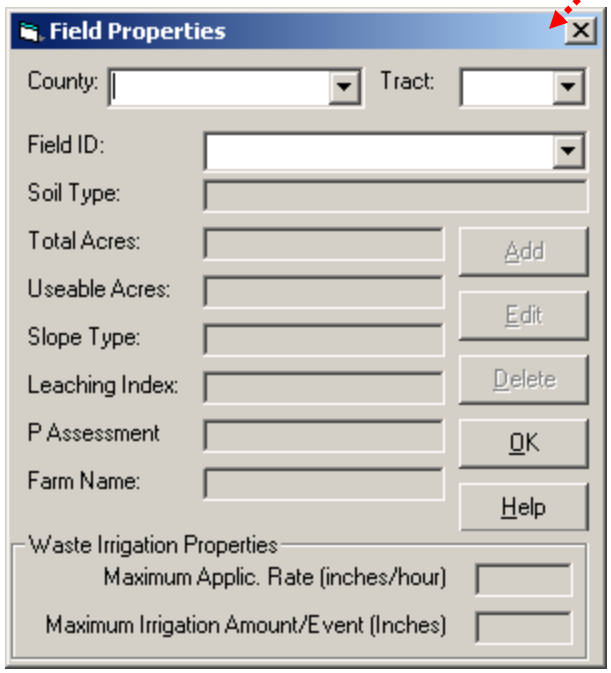
Waste irrigation properties are based on irrigation group for a particular soil. These values will appear automatically.

8) Farm: View Existing Field Information

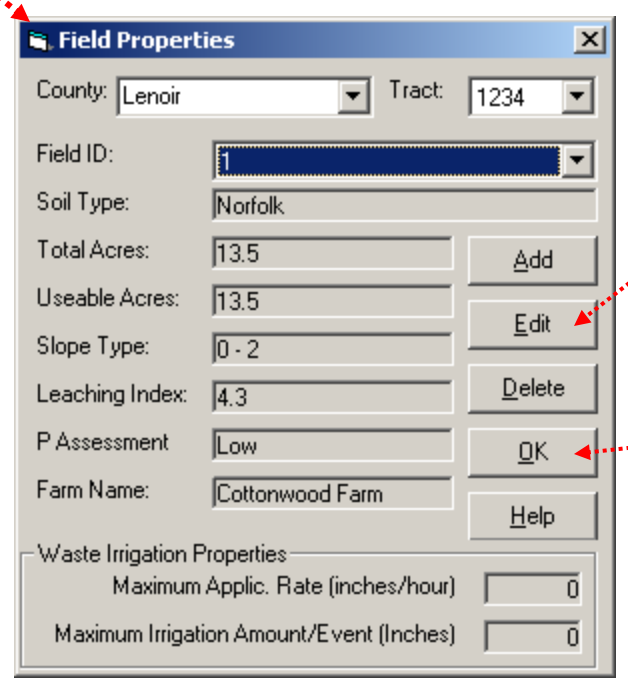
To view field properties click **Farm** > **Field**.



In the **Field Properties** dialog box specify **County**, **Tract** and **Field ID**.



Verify field information.



Use **Edit** to make changes to field properties**.**

Click **OK** to save.

Use **Delete** to remove a field.

10) Farm: Field Information – Leaching Index

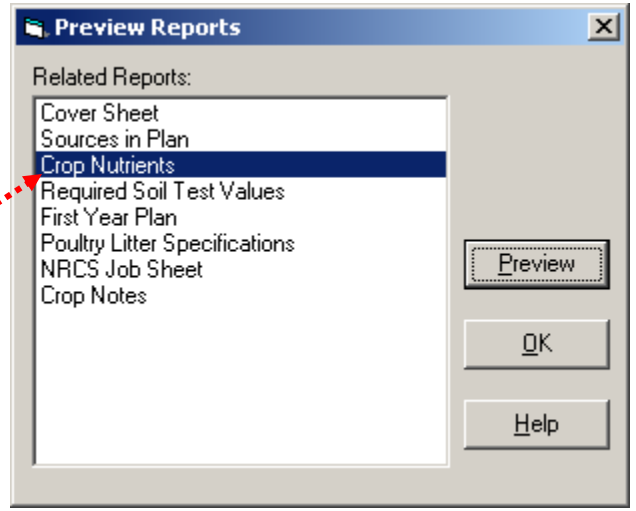
- Reference: NRCS FOTG, Section III
http://efotg.nrcs.usda.gov/toc.aspx?CatID=8562

- Used for evaluating the potential for contaminating ground water with soluble nutrients (e.g. nitrogen)
- Estimates the degree to which water percolates below the root zone in certain soils
- Based on annual precipitation, hydrologic soil group & rainfall distribution data
- NM policy requires LI be used in selected watersheds to assess potential nitrate leaching

Procedure:

1) Find the soil's hydrologic group.
2) Locate the Iso-leaching map for that group
3) From the map, based on the soil location, determine the LI

Note: The LI Guidelines for Recommendations will print with the **Crop Nutrients** report from NM software.

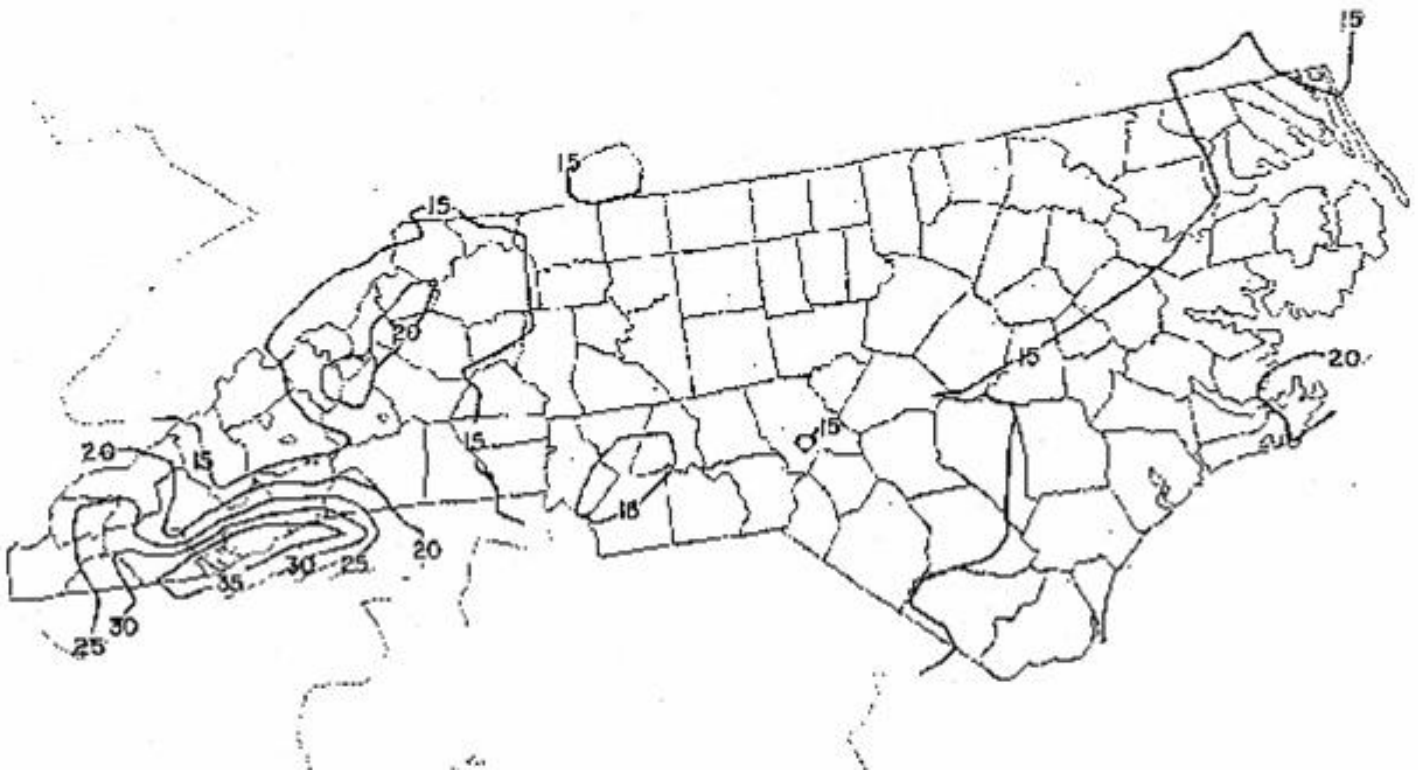


10) Farm: Field Information – Leaching Index

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service
Raleigh, NC

Field Office Technical Guide
Section III
February 2002

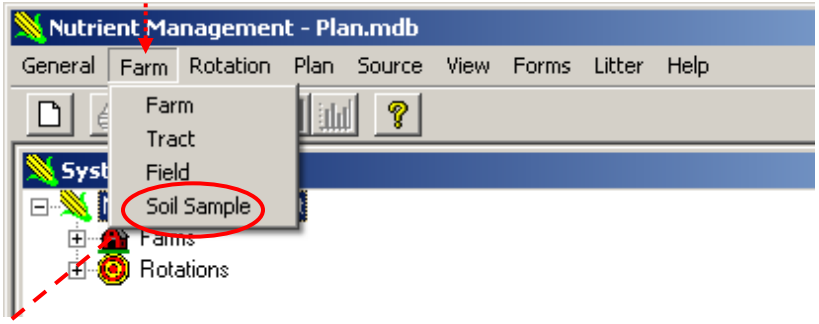
LEACHING INDEX FOR HYDROLOGIC GROUP B
North Carolina

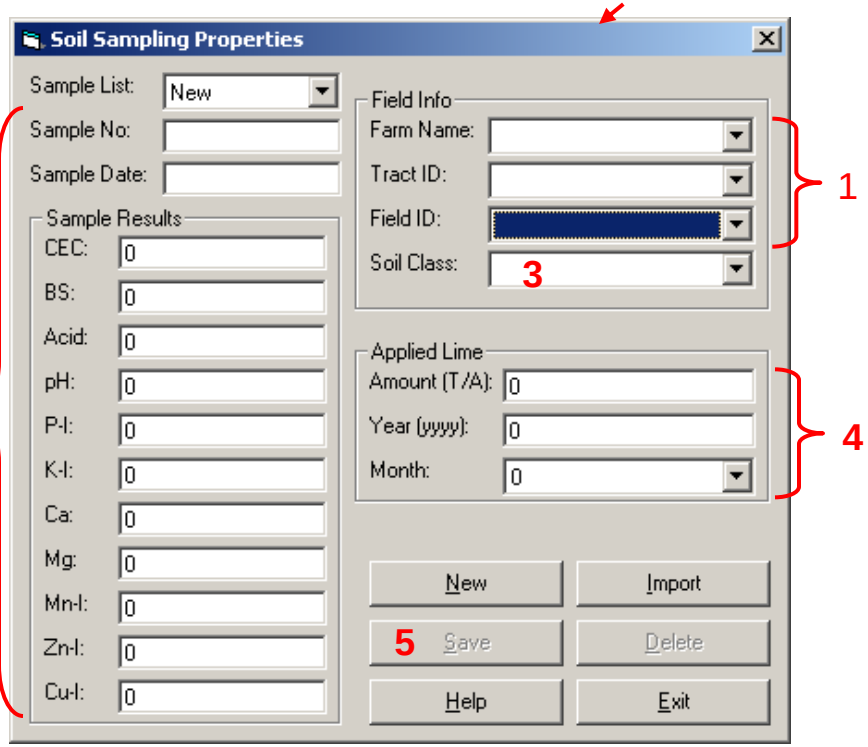


11) Farm: Soil Sample Information

Manual Entry

Click **Farm** > **Soil Sample** to activate the **Soil Sampling Properties** dialog box.





Manual Entry:

1) Select **Farm Name**, **Tract ID** & **Field ID**
2) Enter **Sample No.**, **Date**, & **Sample Results** directly from Soils Report
3) Enter **Soil Class**
4) Enter liming info. under **Applied Lime**
5) Use **Save** to save data.

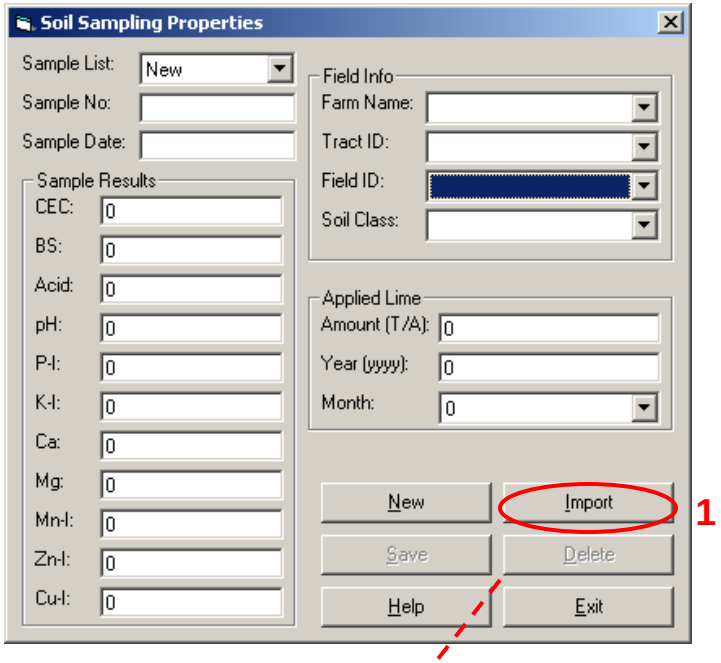
11) Farm: Soil Sample Information

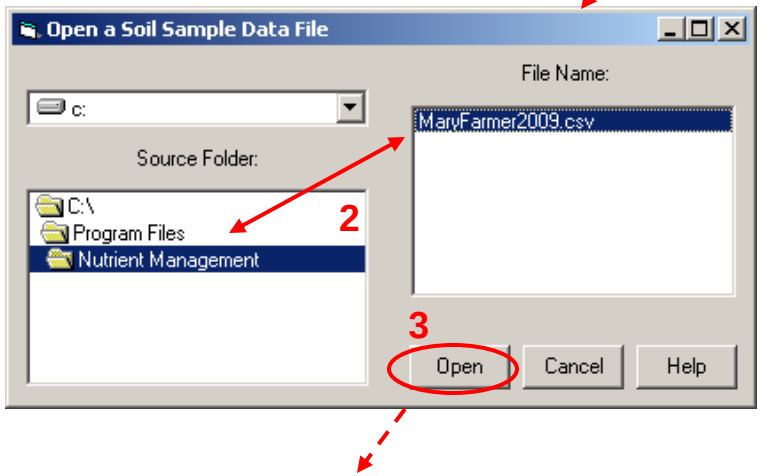
Import Soils Data

Use the Import button to import soil samples into the program if the report has previously been downloaded to your computer from the "NCDA&CS Agronomic Reports Online" web site as a CSV report file.

To Import soil sample information:

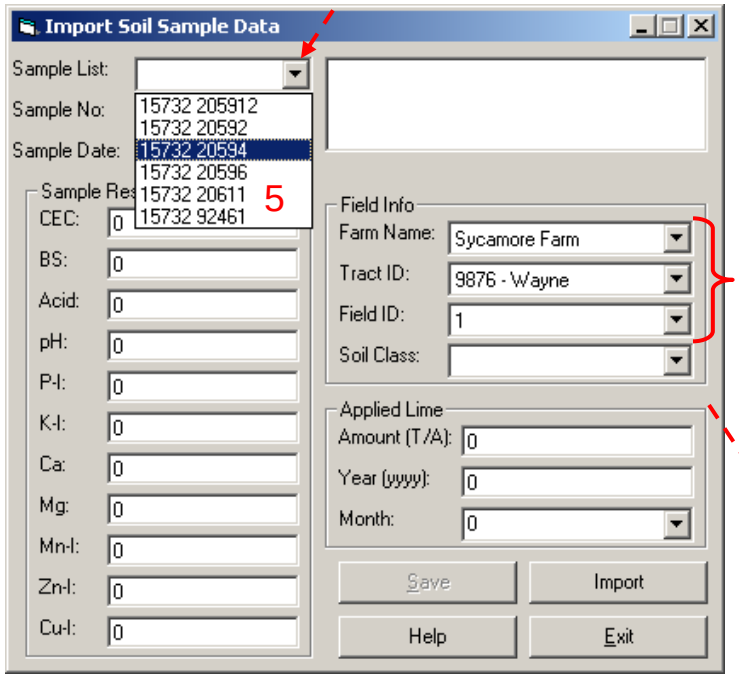
1) Click **Import**, 2) select the appropriate file path and .csv file name and then 3) click **Open**.





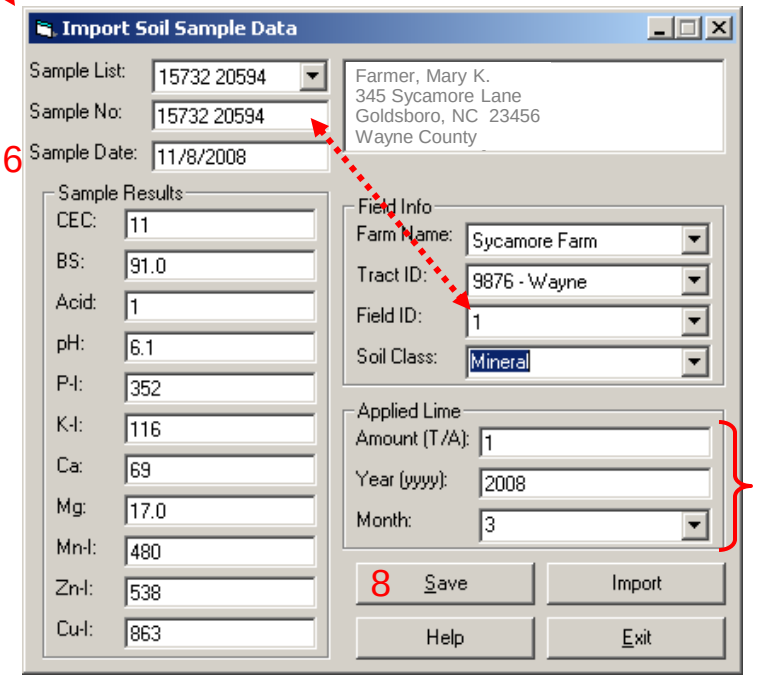
11) Farm: Soil Sample Information

Import Soils Data



4) Enter **Farm Name**, **Tract ID** and **Field ID**
5) select the sample number from the drop-down **Sample List**

A **Soil Sampling Properties** dialog box will appear.

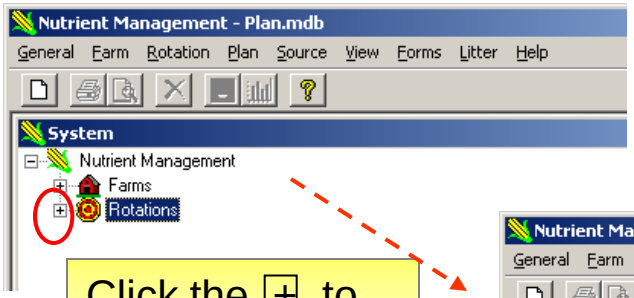


6) Double-check sample date
7) Enter the tons/ac., year and month under **Applied Lime**.
8) Click **Save**

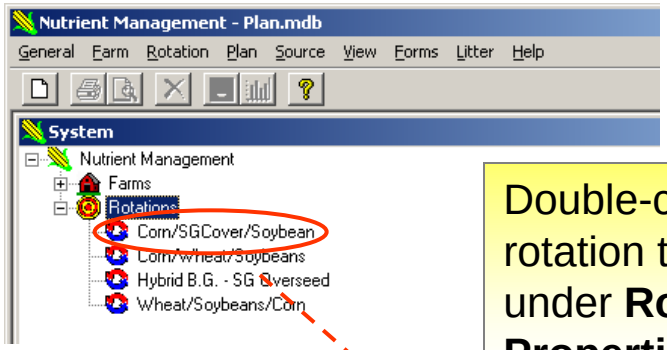
Continue adding and saving all samples. Use **Exit** when finished.

13) Rotations: View Existing

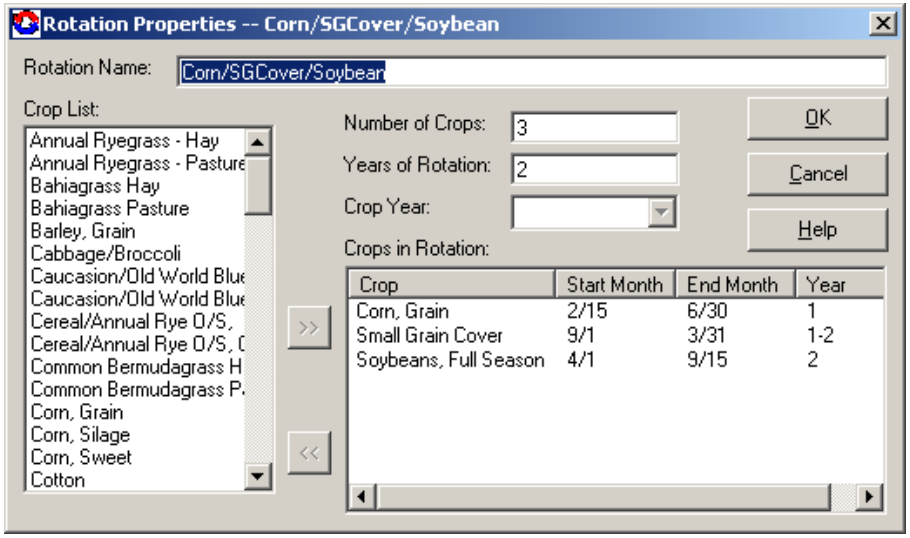
View and edit rotations from the **System Window**



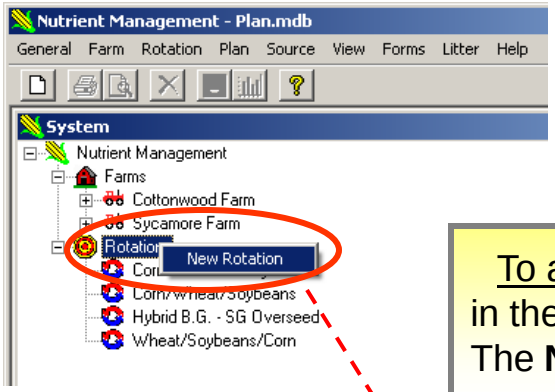
Click the ⊞ to view existing rotations.



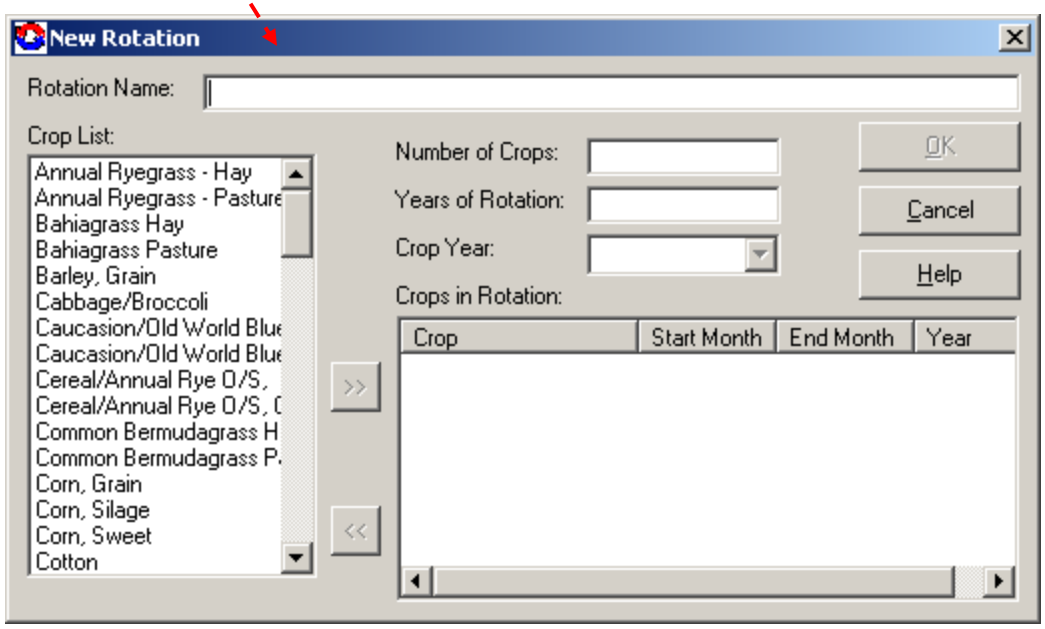
Double-click a specific rotation to view details under **Rotation Properties**.



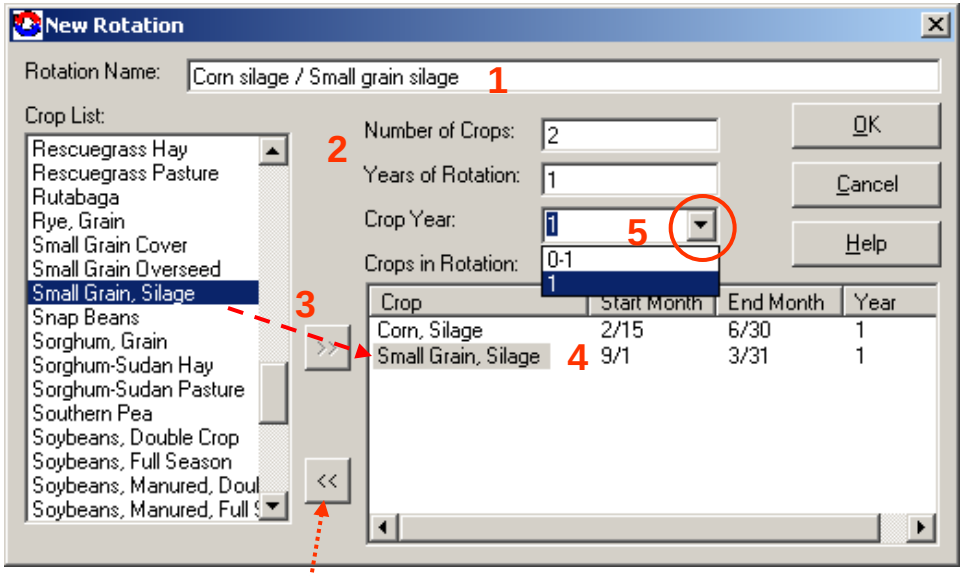
13) Rotations: Create New



To add a new rotation: right-click on **Rotations** in the System Window and select **New Rotation**. The **New Rotation dialog box** will appear.



13) Rotations: Build a New Rotation



*Note: Use the "«" button to remove a specific crop from the **Crops in Rotation** list.*

In the **New Rotation** dialog box:

1) Name the rotation under **Rotation Name**.
2) Specify the **Number of Crops** and the total **Years of Rotation**.
3) Move each crop (in order) to the **Crops in Rotation** box by selecting it from the **Crop List** and clicking on the "»" button. The **Crop**, **Start Month**, **End Month** and **Year** will fill-in automatically.
4) Select the crop name that has just been added, and
5) Click on the **Crop Year** drop down box to identify the year for that crop in the rotation. Repeat this for each crop in order of appearance in the rotation.